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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

POLK, SHARON A

ART UNIT PAPER NUMBER

2836

DATE MAILED: 10 03 2002

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/821,573

Applicant(s)

ROTHLEITNER ET AL.

Examiner

Sharon Polk

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on 29 March 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☐ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 1-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on 12 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Specification*

1. The disclosure is objected to because of the following informalities: the statement on page 6, line 25 is incorrect when comparing it to the drawing figure. Also, element 14 is referred to as main power source, and main power supply. Please use consistent terminology. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 1-4, 7, 12-14, 16, 18-20, and 24-28 are rejected under 35 U.S.C. 102(b) as being anticipated by Kier et al.**

With regard to **claims 1, and 12, 14, 16**, Kier et al. teach:

a backup power supply system for a load, which reads on a restraint control module, comprising:

a main power source (12) connected to a backup power source charging circuit (19) and said restraint control module (15);

a backup power source (18) connected to said backup power source charging circuit (19) and said restraint control module (15);

a boost converter control and driver circuit (10) connected to a boost converter switching device (20) that is connected to said backup power source charging circuit

(19), wherein said boost converter control and driver circuit (10) drives said boost converter switching device (20) to charge said backup power source (18) with said backup power source charging circuit (19) during normal power operation (col. 5, lines 9-10); and

a backup power supply control and driver circuit (38) connected to a backup power supply switching device (36) that is connected to said backup power source, wherein said backup power supply control and driver circuit uses said backup power supply switching device to switch the source of power to said restraint control module from said main power source to said backup power source during a loss of power from said main power source (col. 3, lines 57-61).

Regarding **claims 2, and 13**, Keir et al. inherently teach a main power source monitoring circuit. This is taught by teaching detection of an interruption in power of its power source. Thus, monitoring is required to yield detection.

Regarding **claim 3**, Keir et al. teach the backup power source charging circuit comprises an inductor (48a, 48b) connected to said main power source (12) and said backup power source (19).

Regarding **claim 4**, Keir et al. teach the backup power source comprises a capacitor (18).

Regarding **claims 7, and 20**, Keir et al. teach a voltage regulator (19) connected to said backup power source and said boost converter control and driver circuit for regulating the output voltage generated by said backup power source (col. 3, 52-56).

With regard to **claim 24**, Keir et al. teach:

a method of providing backup power for a restraint control module, comprising the steps of:

powering said restraint control module with a main power source (12) during normal operation;

sensing power on said main power source with a main power monitoring circuit;

providing a boost converter control and driver circuit (10) connected to a boost converter switching device (20);

charging a backup power source with a backup power source charging circuit (19) connected to said main power source and said boost converter switching device, wherein said boost converter control and driver circuit (10) energizes said boost converter switching device (20) to thereby transfer energy to said backup power source when said main power source is operating within a predetermined nominal voltage range (col. 3, lines 50-64); and

switching power to said restraint control module from said main power source to said backup power source with a backup power supply control and driver circuit that is connected to a backup power source switching device, wherein said backup power source switching device is used to transfer power from said main power source to said backup power source (col. 3, lines 50-64).

Regarding **claim 25**, Keir et al. teach the method of regulating the output voltage generated by said backup power source with a voltage regulator (19).

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Regarding **claim 26**, Keir et al. teach the method where the voltage regulator (19) is connected to said backup power source (18) and said boost converter control and driver circuit (10).

Regarding **claims 19 and 27**, Keir et al. teach the method where the backup power source comprises a capacitor (18).

Regarding **claims 18, and 28**, Keir et al. teach the method where the backup power source charging circuit comprises an inductor (48a, 48b).

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

**Claims 5, 6, 15, 17, 29, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keir et al. in view of Hshieh et al., US 5,639,676.**

With regard to **claims 5, 6, 15, 17, 29, and 30**, Keir et al. teach the claimed invention except for use of DMOS transistors. Hshieh et al. teach that DMOS transistors are well known as a type of MOSFET using diffusions to form the transistor regions with a typical application being as a power transistor. Therefore it would have been obvious to one of ordinary skill at the time of the invention to modify Keir et al. with the teachings of Hshieh et al. to provide faster switching.

**Claims 8, 10, 21, 23, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keir et al..**

With regard to **claims 8, and 21**, adding the limitations of an error amplifier connected to a PWM comparator; official notice is taken that the claimed features are conventional PWM regulation operations because it is known in the art to use PWM regulation to compare output voltage to a reference voltage, and that difference is known as error amplification. It would have been obvious to one of ordinary skill at the time of the invention to modify Keir et al. to include the error amplifier and PWM comparator to provide a steady stable voltage.

With regard to **claims 10, 23, and 31**, adding the limitations of overcurrent protection. Official notice is taken that it is well known to protect all circuits in an automobile with a fuse device. It would have been obvious to one of ordinary skill at the time of the invention to modify Keir et al. to include a fuse to disconnect the circuit.

**Claims 9 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keir et al. in view of Pelley, III et al., US 5,726,944.**

With regard to **claims 9 and 22**, Keir et al. teach the claimed invention except for use of a charge pump. Pelley, III et al. teach using a charge pump (56). It would have been obvious to one of ordinary skill at the time of the invention to modify Keir et al. with the teachings Pelley, III et al. for the purpose of producing a boosted voltage in response to an ON/OFF signal from the voltage regulator (col. 11, lines 34-36).

**Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Keir et al. in view of Chen, US 5,737,208.**

With regard to **claim 11**, Keir et al. teach the claimed invention except for use of an oscillator. Chen teaches use of an oscillator (IC1). It would have been obvious to one of ordinary skill at the time of the invention to modify Keir et al. with the teachings of Chen for the purpose of generating a positive half cycle signal and negative half cycle signal, and for controlling the output signal in a frequency range of 25KHz  $\pm$  1Hz (col. 2, lines 46-47 & 50-51).

***Pertinent Prior Art***

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: US 5,045,835, 5,420,790, and 5,187,382 which disclose power supply systems for vehicles. Additionally, JP 11-252825, and its English translation disclose an onboard power supply system.



***Communications with the PTO***

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sharon Polk whose telephone number is 703-308-6257. The examiner can normally be reached on M-F 7-3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on 703-308-3119. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7724 for regular communications and 703-305-7723 for After Final communications.


Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

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September 27, 2002

Sharon Polk

Patent Examiner – Art Unit 2836

  
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